

SECTION 31 23 13

SUBGRADE PREPARATION

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Finish grading of roadway subgrade and subgrade preparation
- B. Dust alleviation and control
- C. Cleanup and disposal
- D. Provision of all materials, equipment, and apparatus not specifically mentioned herein or noted on the plans, but which are obviously necessary to complete the work specified

1.2 RELATED WORK

Not used

1.3 MEASUREMENT AND PAYMENT

Except as provided, roadway subgrade preparation shall be paid for under other items of work and no additional compensation shall be made therefor.

1.4 REFERENCE STANDARDS

- A. State of California Department of Transportation Standard Specifications (SS)

Section 19	Earthwork
Subsection 19-2	Roadway Excavation

Section 40	Concrete Pavement
Subsection 40-1.03C	Subgrade Preparation

- B. American Society for Testing and Materials (ASTM)

ASTM D 1557	Standard Test Methods for Laboratory Compaction
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1.5 QUALITY ASSURANCE

- A. All work under this section will be subject to the inspection and approval of both the Engineer and an approved geotechnical engineer registered in California. Compaction testing either shall be performed by the geotechnical engineer or by a City approved independent testing laboratory under the supervision of a California registered geotechnical engineer.

- B. The geotechnical engineer shall make enough visits to the site to insure ongoing familiarity with the progress and quality of the work. The geotechnical engineer shall make a sufficient number of field observations and tests to allow the forming of an opinion regarding the adequacy of the site preparation, the acceptability of the native or import fill material, and the extent to which the degree of compaction meets the specification requirements and the project needs.
- C. Any fill where the site preparation, type of material, or compaction is not approved by the geotechnical engineer, shall be removed and/or recompacted until the requirements are satisfied and approved by said geotechnical engineer. As required, fill material shall be tested for pollutants and certified for suitability by the geotechnical engineer.
- D. On City-funded Projects, services of the geotechnical engineer and/or testing laboratory shall be retained by, and paid for by the City. On all other projects, the geotechnical engineer and/or testing laboratory shall be retained by, and paid for by the developer. For City-funded projects, testing will be paid for by the City; however, testing or retesting caused by unsatisfactory contract operations shall be paid for by the Contractor.
- E. The geotechnical engineer shall provide quality assurance reports as required and accepted by the Engineer.
- F. Finish surface of the prepared subgrade shall not vary more than one-tenth foot (0.10') from that called for on the plans or detail drawings.
- G. Percentage of compaction specified shall be the minimum acceptable. Unless otherwise specified, 90% will be the minimum acceptable. The percentage represents the ratio of the dry density of the compacted material to the maximum dry density of the material, as determined by the procedure set forth in ASTM Designation D 1557.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

3.1 SUBGRADE PREPARATION

- A. The Contractor shall accurately grade and prepare the subgrade section to the lines and grades called for on the plans and detail drawings, with due provision for future surface improvements and in accordance with SS Section 19-2, "Roadway Excavation" and Section 40-1.03C, "Subgrade Preparation".

- B. Upon completion of roadway earthwork operations, the entire work area shall be scarified to a minimum depth of six inches (6"), or as called for on the plans and detail drawings, wetted or dried to an appropriate moisture content, and compacted to the lines and grades called for on the plans and detail drawings, at a density of not less than ninety-five percent (95%), unless otherwise noted on the plans, of maximum dry density as determined by the procedure set forth in ASTM D 1557.
- C. The Contractor shall, at all times, maintain the subgrade surface in such condition as to readily drain effectively. Vehicular and equipment traffic shall be distributed across the prepared surface in such a manner as to prevent continual operation in one path. The Contractor shall repair any damage to the prepared subgrade to the satisfaction of the Engineer, at no additional expense to the contract.
- D. Storage or stockpiling of heavy loads on the roadway subgrade will not be permitted. Storage within the right-of-way shall be only upon the approval of the Engineer.
- E. The Contractor shall be responsible for any failure of the underlying native soils during the course of the work, and shall repair any damage to the satisfaction of the Engineer, at no additional expense to the Contract.
- F. Finished subgrade shall be subject to the approval of the Engineer, and no subsequent material or improvement shall be placed thereon until approval for it has been obtained from the Engineer.

-END OF SECTION-